



**Order Code**

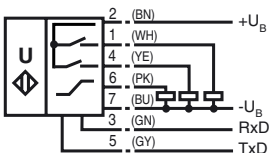
**UC2000-F43-2KIR2-V17**

**Features**

- Current output 4 mA ... 20 mA
- 2 relay outputs
- Serial interface
- Temperature compensation
- Reverse polarity protection
- Parameterisable with ULTRA 3000

**Electrical Connection**

Standard symbol/Connection:

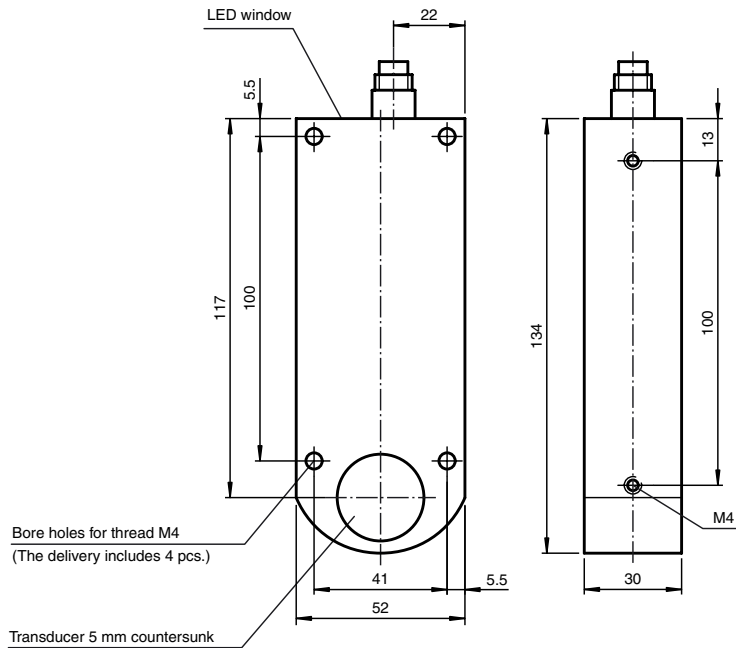


Core colours in accordance with EN 60947-5-2.

**Connector V17**



**Dimensions**



**Technical Data**

<b>General specifications</b>	
Sensing range	80 ... 2000 mm
Adjustment range	100 ... 2000 mm
Unusable area	0 ... 80 mm
Standard target plate	100 mm x 100 mm
Transducer frequency	approx. 175 kHz
Response delay	minimum (EM; NONE): ≤50 ms (2 measuring cycles) factory setting (EM, MXN, 5, 2): ≤150 ms (6 measuring cycles) dynamic (EM, DYN): ≤75 ms (3 measuring cycles)
<b>Indicators/operating means</b>	
LED green	continuous: object in the measuring window flashing: object outside the measuring window error (e. g. interference level too high)
LED red	
<b>Electrical specifications</b>	
Operating voltage	10 ... 30 V DC ripple ± 10 % <sub>SS</sub>
Power consumption P <sub>0</sub>	≤ 2 W (all relays pulled-in, current output 20 mA) no-load power consumption ≤ 0.7 W
<b>Interface</b>	
Interface type	RS 232, 9600 bit/s, no parity, 8 data bits, 1 stop bit
<b>Output</b>	
Output type	2 relay outputs, 1 analogue output 4 ... 20 mA
Resolution	0.6 mm
Deviation of the characteristic curve	< 0.2 % of full-scale value
Repeat accuracy	≤ 0.1 % of full-scale value
Range hysteresis H	0 ... 15 % parameterisable with ULTRA 2001
Load impedance	current output: ≤ 500 Ω at U <sub>B</sub> ≥ 17V ≤ 200 Ω at U <sub>B</sub> < 17V
Contact loading	60 V DC / 1 A (max. 24 W DC), ohmic
Lifetime	electrical: 3 x 10 <sup>5</sup> switching cycles at resistive load (1 A / 24 V DC) mechanical: 10 <sup>7</sup> switching cycles
Temperature influence	≤ 2 % of full-scale value
<b>Standard conformity</b>	
Standards	EN 60947-5-2
<b>Ambient conditions</b>	
Ambient temperature	-25 ... 70 °C (248 ... 343 K)
Storage temperature	-40 ... 85 °C (233 ... 358 K)
<b>Mechanical specifications</b>	
Protection degree	IP65
Connection	8-pin round connector, Lumberg type RSF 8
Material	
Housing	PBT
Transducer	epoxy resin/hollow glass sphere mixture; polyurethane foam
Mass	290 g

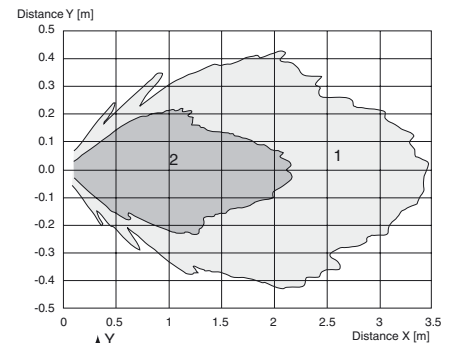
Thanks to its extensive command set, the sensor can be configured to suit the application via the RS 232 interface.

### RS 232 command set (overview)

Command	Meaning	Parameter	Access
VS0	Velocity of Sound at 0 °C	Velocity of sound at 0 °centigrade VS0 in [cm/s] {12000 ... 60000}	read and set
VS	Velocity of Sound	Velocity of sound VS in [cm/s]	read
TO	Temperature Offset	TO in [0.1K]	read and set
TEM	TEMperature	TEM in [0.1K]	read and adapt to TO
REF	REFerence measurement	REF distance in [mm] {100 ... 4000}	adaptation of VS0
SD1	Switching Distance 1	Switching point, relay 1 SD1 in [mm] {100 ... 4000}	read and set
SD2	Switching Distance 2	Switching point, relay 2 SD1 in [mm] {100 ... 4000}	read and set
SH1	Switching Hysteresis 1	Hysteresis, relay 1 in [%] {0 ... 15}	read and set
SH2	Switching Hysteresis 2	Hysteresis, relay 2 in [%] {0 ... 15}	read and set
NDE	Near Distance of Evaluation	Near measuring window limit in [mm] {100 ... 4000}	read and set
FDE	Far Distance of Evaluation	Far measuring window limit in [mm] {100 ... 4000}	read and set
BR	Unusable area (Blind Range)	Unusable area in [mm] {0 ... 4000}	read and set
RR	Range Reduction	reduces sensing range [in mm] {100 ... 4000}	read and set
CBT	Constant Burst Time	Burst length {0,1, 2, 3}	read and set
CCT	Constant Cycle Time	Time in [ms] {0 ... 1000}	read and set
FTO	Filter TimeOut	Number of measurements without echo to be filtered {0 ... 255}	read and set
EM	Evaluation Method	Evaluation method { 0 = NONE; PT1[,f,p,c]; MXN[,m,n]; DYN[,p] }	read and set
CON	CONservative filter	Counter threshold as number {0 ... 255}	read and set
OM	Output Mode	OM coded [normally-open = 0, normally-closed = 1, inactive = I]	read and set
FSF	Fail Safe Function	Failure function type e.g. FSF,11,35 {0,1,2}, [fault current in 0.1 mA], -1 = current output indifferently	read and set
MD	Master Device	Function as master {0 = NONE},AD,RD,RT,SS,ADB,RDB,RTB }	read and set
MA	Main Application	Determines whether the green LED orients on analogue output or switching outputs {A,S}	read and set
NEF	No Echo Failure	Sensor behaviour when no echo is present {0,1}	read and set
AD	Absolute Distance	Distance in [mm]	read
RD	Relative Distance	Relative distance as number {0 ... 4095}	read
RT	RunTime	Echo run time in machine cycles [1 machine cycle = 1.085µs]	read
SS1	Switching State 1	SS1 binary [0: inactive, 1 active] (independent of OM)	read
SS2	Switching State 2	SS2 binary [0: inactive, 1 active] (independent of OM)	read
ADB	Absolute Distance Binary	Distance in [mm] not as ASCII	read
RDB	Relative Distance Binary	Relative distance as number {0 ... 4095} not as ASCII	read
RTB	RunTime Binary	Echo run time in machine cycles [1 machine cycle = 1.085µs] not as ASCII	read
ER	Echo Received	Echo detected: no, yes [0/1]	read
VER	VERsion	Version string: xxxx	read
ID	IDentification	ID string: P&F UC2000-F43-2KIR2-V17...	read
DAT	DATE	Date string: e.g. Date: 04/12/02 Time: 11:14:35	read
ST	STatus	Status as hexadecimal string	read
RST	ReSeT	Performs a reset	Command
DEF	DEFault settings	Restores defaults	Command
SUC	Store User Configuration	Stores all settings	Command
RUC	Recall User Configuration	Restores stored settings	Command

### Characteristic Curves/Additional Information

#### Characteristic response curve



Curve 1: flat surface 100 mm x 100 mm  
Curve 2: round bar, Ø 25 mm

#### Basic setting

##### OM:

Relay 1: NO  
Relay 2: NO

##### SD1/SD2:

Switch point relay 1 = 100 mm  
Switch point relay 2 = 2000 mm

##### NDE/FDE:

Analogue output: 4 mA ⇒ 100 mm  
20 mA ⇒ 2000 mm

##### FSF:

Error ⇒ Relay 1 and 2: latest state  
⇒ Analogue output: Iout = 3,9 mA

##### NEF:

No echo ⇒ error message

##### MA,S:

Switching mode

#### Accessories

UC-F43-R2  
RS 232-Interface

ULTRA3000  
Software for ultrasonic sensors, comfort line

V17-G-2M-PUR  
Cable socket, shielded

V17-G-5M-PUR  
Cable socket, shielded

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